REMARKS

This response is intended as a full and complete response to the final Office Action mailed June 28, 2005. In the Office Action, the Examiner notes that claims 1-4 and 7-17 are pending and rejected. By this response, claims 1, 9-10, and 17 are amended and claim 11 is cancelled. Claims 2-4, 7-8, and 12-16 continue unamended.

In view of the above amendments and the following discussion, Applicants submit that none of the claims now pending in the application are obvious under the provisions of 35 U.S.C. §103. Thus, Applicants believe that all of these claims are now in allowable form.

It is to be understood that Applicants, by amending the claims, do not acquiesce to the Examiner's characterizations of the art of record or to Applicants' subject matter recited in the pending claims. Further, Applicants are not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

REJECTIONS

35 U.S.C. §103

Claims 1-4 and 7-17

The Examiner has rejected claims 1-4 and 7-17 under 35 U.S.C. §103(a) as being unpatentable over Fan et al. (U.S. Patent 6,324,165 B1, hereinafter "Fan") in view of Basso et al. (U.S. Patent 5,787,071, hereinafter "Basso"), further in view of Chen et al. (U.S. Patent 6,188,674B1, hereinafter "Chen"). Applicants respectfully traverse the rejection.

In general, Fan discloses a large capacity, multiclass ATM switch architecture. In particular, Fan teaches an ATM switch that supports multiple traffic classes and quality-of-service (QoS) guarantees. The ATM switch architecture supports both real-time traffic classes with strict QoS requirements, e.g., CBR and VBR, and non-real-time traffic classes with less stringent requirements, e.g., ABR and UBR. Fan, however, fails to teach each and every

element of Applicants' invention as recited in independent claim 1. Namely, as conceded by the Examiner in the Office Action, Fan fails to teach or suggest selective backpressure signaling. Furthermore, Basso and Chen, alone or in combination, fail to bridge the substantial gap between Fan and Applicants' invention.

In general, Basso teaches a hop-by-hop flow control system that generates backpressure notification to upstream nodes when traffic entering a node exceeds a threshold. (Basso, Abstract). In particular, Basso teaches that "[t]he backpressure mechanism encompasses two primitives, a selective backpressure primitive which allows any node to control one connection, and a global backpressure primitive which, in case of global congestion, allows any node to control one link..." (Basso, Col. 2, Lines 44-48).

Basso, however, does not teach each and every element of Applicants' independent claim 1. Namely, Basso fails to teach or suggest at least the limitations of "asserting a first backpressure signal towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream and asserting a second backpressure signal towards the Best Effort Traffic Stream." In particular, Applicants' claim 1 positively recites:

> "1. A method of regulating traffic in a communications network comprising the steps of:
> aggregating one or more component traffic flows into a component traffic stream;
> aggregating a plurality of component traffic streams into an aggregate stream, wherein the plurality of component traffic streams comprises a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream;
> carrying the aggregate stream in a single, FIFO queue; and
> generating selective backpressure on selected ones of the component traffic streams such that selected ones of the component streams are desirably regulated, wherein said generating selective backpressure comprises:
> asserting a first backpressure signal towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream; and
> asserting a second backpressure signal towards the Best Effort Traffic Stream;

said selective backpressure being generated in response to respective credit counters associated with said selected ones of the component traffic streams reaching a threshold level."
[Emphasis added.]

As taught in Applicants' invention of at least claim 1, the plurality of component traffic streams includes a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream. The selective backpressure is generated based on a credit function associated with each of the component traffic streams aggregated in the aggregate FIFO queue. In particular, generation of selective backpressure in Applicants' invention of claim 1 includes asserting a first backpressure signal and asserting a second backpressure signal. The first backpressure signal is asserted towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream, while the second backpressure signal is asserted towards the Best Effort Traffic Stream.

Although Basso discloses the use of a reserved bandwidth service and a non-reserved bandwidth service, Basso merely teaches that the reserved bandwidth service and the non-reserved bandwidth service may be used for increasing the utilization of links between network elements. Basso fails to teach a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream, as taught in Applicants' invention of at least claim 1. Rather, Basso teaches reserved and non-reserved service classes where each link supports a plurality of connections established either by the reserved or non-reserved bandwidth service class. Thus, Basso fails to teach aggregation of a plurality of component traffic streams, including a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream, into an aggregate stream.

Rather, by contrast, Basso teaches a combination of selective backpressure for controlling a single connection and global backpressure for controlling all connections associated with a given link. Although Basso discloses use of both selective backpressure and global backpressure, Basso merely teaches that selective backpressure is issued to the buffer associated with the single connection to which the selective backpressure is applied, while global backpressure is issued to all buffers associated with a given link. Furthermore,

Basso teaches that only one or the other of the selective backpressure and the global backpressure is applied. Thus, Basso, fails to teach or suggest asserting a first backpressure signal to both a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream and asserting a second backpressure signal to a Best Effort Traffic Stream, as taught in Applicants' invention of at least claim 1.

As such, generation of selective backpressure to control traffic flow for one connection or generation of global backpressure to control traffic flow for all connections, as taught in Basso, is simply not assertion of a first backpressure signal towards a Guaranteed Bandwidth Traffic Stream and a Best Effort Traffic Stream and assertion of a second backpressure signal towards the Best Effort Traffic Stream, as taught in Applicants' invention of at least claim 1. Furthermore, Basso is completely devoid of any teaching or suggestion of "asserting a first backpressure signal towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream and asserting a second backpressure signal towards the Best Effort Traffic Stream." As such, Applicants submit that Basso also fails to teach or suggest Applicants' invention of at least claim 1, as a whole.

Furthermore, Chen fails to bridge the substantial gap between Fan and Basso and Applicants' invention. In general, Chen teaches measurement of packet losses in switches by identifying traffic flows in the ingress side of switches and measuring packets losses for the identified flows on the egress side of the switches. (Chen, Abstract). In particular, Chen discloses that "loss measurements are achieved by selecting the particular traffic flow, or flows, to be measured, identifying those flows in the ingress modules, marking each of the flows, and observing the packets of the flows at the egress modules." (Chen, Col. 2, Lines 8-12). Chen, however, fails to teach or suggest each and every element of Applicants' invention of at least claim 1. Namely, Chen fails to teach or suggest at least the limitations of "asserting a first backpressure signal towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream and asserting a second backpressure signal towards the Best Effort Traffic Stream," as taught in Applicants' invention of at least claim 1.

The Examiner asserts that Chen discloses the use of a credit counter for each component traffic stream that initializes, decrements, increments, and resets the counter as desires. (Office Action, Pg. 5). The Applicants respectfully submit, however, that Chen merely discloses an ingress module for breaking a packet flow into packet blocks having respective starting block sizes, and an egress module for determining respective ending block sizes of the packet blocks received at the egress module. Chen further discloses comparing the starting block sizes to the ending block sizes in order to determine the number of packets, associated with each packet block, that are lost between the ingress module and egress module.

The packet loss measurement method of Chen, however, is completely different from the credit counter of Applicants' invention. Furthermore, Chen is completely devoid of any teaching or suggestion of credit-based flow control. In fact, Chen is completely devoid of any teaching or suggestion of any type of flow control. As such, Chen is completely devoid of any teaching or suggestion of backpressure generation, much less of the limitations of "asserting a first backpressure signal towards the Guaranteed Bandwidth Traffic Stream and the Best Effort Traffic Stream and asserting a second backpressure signal towards the Best Effort Traffic Stream," as taught in Applicants' invention of at least claim 1. Thus, Chen fails to teach or suggest Applicants' invention of at least claim 1, as a whole.

Moreover, even if the teachings of Fan, Basso, and Chen could somehow be operatively combined, the result would still be a system in which selective backpressure on a single connection or global backpressure on all connections is generated based upon queue length or a number of lost packets. Since loss of packets may impact queue length, computation of the number of lost packets as taught in Chen merely comprises another method of measuring queue length. As such, there would be no motivation to incorporate the teachings of Chen into a system comprising a combination of the teachings of Fan and Basso. Thus, Fan, Basso, and Chen, alone and in combination, fail to teach Applicants' invention as a whole.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Thus, it is impermissible to focus either on the "gist" or "core" of the invention, Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416, 420 (Fed. Cir. 1986) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The Fan, Basso and Chen references, alone or in combination, fail to teach or suggest the Applicants' invention as a whole.

Thus, the Applicants submit that independent claim 1 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Furthermore, Applicants' remarks presented above with respect to claim 1 apply with equal force to the corresponding "means" clauses of independent claim 17. Thus, Applicants submit that independent claim 17 is also not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder.

Furthermore, for at least the reasons set forth above with respect to independent claim 1, dependent claims 2-4, 7-10, and 12-16, which depend directly or indirectly from independent claim 1 and recite additional features therefor, are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, Applicants respectfully request that the Examiner's rejection be withdrawn.

CONCLUSION

Applicants submit that claims 1-4, 7-10, and 12-17 are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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